

Claims

I claim:

1. A method of mounting a piezoelectric device having a plurality of piezoelectric mounting pads directly to a PC board having a plurality of PC board mounting pads, the method comprising the steps of:
 - 5 applying first amounts of a conductive adhesive to each of the piezoelectric mounting pads;
 - curing the first amounts of conductive adhesive;
 - applying second amounts of a conductive adhesive to each of the
 - 10 PC board mounting pads;
 - placing the piezoelectric device on the PC board such that the PC board mounting pads and the piezoelectric mounting pads correspond to one another; and
 - curing the second amounts of conductive adhesive in order to
 - 15 attach the piezoelectric device to the PC board solely with first amounts of conductive adhesive and the second amounts of conductive adhesive.
2. The method of claim 1 wherein the first amounts of conductive adhesive and the second amounts of conductive adhesive each
- 20 comprise a silver-filled epoxy resin.
3. The method of claim 2 wherein the conductive adhesive cures to a Shore A hardness of between 65 and 75.
- 25 4. The method of claim 1 wherein the conductive adhesive bond between the PC board mounting pad and the piezoelectric mounting pad can withstand a shock test of 50g for 11 milliseconds along 3 axes without a significant fracturing of the bond.
- 30 5. The method of claim 1 wherein the conductive adhesive between the PC board mounting pad and the piezoelectric mounting pad has a resistivity no greater than 0.0004 Ω/cm .

6. The method of claim 1 wherein the first selected amount of adhesive applied to the piezoelectric mounting pad maintains a distance between the piezoelectric device and the PC board of about 0.014" or greater.

7. A device comprising:
a PC board having a plurality of PC board mounting pads;
a piezoelectric device having a plurality of piezoelectric mounting pads which correspond to the PC board mounting pads, the PC board and the piezoelectric device attached in a spaced relationship at corresponding PC board mounting pads and piezoelectric mounting pads solely by a conductive adhesive attachment, each conductive adhesive attachment comprising:

15 a first amount of conductive adhesive attached to the piezoelectric mounting pad, the first amount of conductive adhesive determining a distance of the spaced relationship between the piezoelectric device and the PC board; and

20 a second amount of conductive adhesive for attaching the piezoelectric device to the PC board.

8. The device of claim 7 wherein the first mount of adhesive and the second amount of adhesive are each a silver-filled epoxy resin.

25 9. The device of claim 8 wherein the silver-filled epoxy resin cures to a Shore A hardness of between 65 and 75.

10. The device of claim 7 wherein the device can withstand a shock of 50g for 11 ms without significant fracture of the first or second amounts of conductive adhesive.

11. The device of claim 7 wherein the conductive adhesive has a resistivity no greater than 0.0004 Ω/cm .

12. The device of claim 7 wherein the spaced relationship between the piezoelectric device and the PC board is about 0.014" or greater.

13. A method of mounting a piezoelectric device having a plurality of piezoelectric mounting pads directly to a PC board having a plurality of PC board mounting pads, the method comprising the steps of:
applying first amounts of a conductive adhesive to each of the PC board mounting pads;
curing the first amounts of conductive adhesive;
applying second amounts of a conductive adhesive to each of the piezoelectric mounting pads;
placing the piezoelectric device on the PC board such that the PC board mounting pads and the piezoelectric mounting pads correspond to one another; and
curing the second amounts of conductive adhesive in order to attach the piezoelectric device to the PC board solely with first amounts of conductive adhesive and the second amounts of conductive adhesive.

14. The method of claim 13 wherein the first amounts of conductive adhesive and the second amounts of conductive adhesive each comprise a silver-filled epoxy resin.

15. The method of claim 14 wherein the conductive adhesive cures to a Shore A hardness of between 65 and 75.

16. The method of claim 13 wherein the conductive adhesive bond between the PC board mounting pad and the piezoelectric mounting

pad can withstand a shock test of 50g for 11 milliseconds along 3 axes without a significant fracturing of the bond.

17. The method of claim 13 wherein the conductive adhesive
5 between the PC board mounting pad and the piezoelectric mounting pad has a resistivity no greater than 0.0004 Ω/cm .

18. The method of claim 13 wherein the first selected amount
of adhesive applied to the piezoelectric mounting pad maintains a distance
10 between the piezoelectric device and the PC board of about 0.014" or greater.

19. A device comprising:
a PC board having a plurality of PC board mounting pads;
15 a piezoelectric device having a plurality of piezoelectric mounting pads which correspond to the PC board mounting pads, the PC board and the piezoelectric device attached in a spaced relationship at corresponding PC board mounting pads and piezoelectric mounting pads solely by a conductive adhesive attachment, each conductive adhesive attachment
20 comprising:

a first amount of conductive adhesive attached to the PC board mounting pad, the first amount of conductive adhesive determining a distance of the spaced relationship between the piezoelectric device and the PC board; and

25 a second amount of conductive adhesive for attaching the piezoelectric device to the PC board.

20. The device of claim 19 wherein the first mount of adhesive and the second amount of adhesive are each a silver-filled epoxy resin.
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21. The device of claim 20 wherein the silver-filled epoxy resin cures to a Shore A hardness of between 65 and 75.

22. The device of claim 19 wherein the device can withstand a shock of 50g for 11 ms without significant fracture of the first or second amounts of conductive adhesive.

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23. The device of claim 19 wherein the conductive adhesive has a resistivity no greater than 0.0004 Ω/cm .

24. The device of claim 19 wherein the spaced relationship
10 between the piezoelectric device and the PC board is about 0.014" or greater.